

REMARKS

Applicant gratefully acknowledges Examiners Rude and Chowdhury for taking time to conduct a courteous and professional personal interview with Applicant's representative on November 20, 2003. During that interview, it seemed to have been agreed that the identification of twist angle as being a previously-unknown parameter for response speed might be adequate rationale for non-obviousness. Therefore, an RCE and this Preliminary Amendment have been filed to allow the Examiner to evaluate this aspect of the present invention.

It is noted that, notwithstanding any claim amendments made herein, Applicant's intent is to encompass equivalents of all claim elements, even if amended herein or later during prosecution.

Claims 1-20 are all of the claims pending in the present Application. The Examiner has made a constructive election of claims 1-17 and has withdrawn claims 18-20 from consideration. Claims 1-7 and 10-17 stand rejected under 35 USC §103(a) as unpatentable over US Patent 5,576,867 to Baur et al. Claims 8 and 9 stand rejected under 35 USC §103(a) as unpatentable over Baur, further in view of Applicant's Admitted Prior Art.

These rejections are respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

As described and claimed, for example, by claim 1, the present invention is directed to an active matrix type liquid crystal display device. A thin film transistor (TFT) substrate having a common wiring and a source/drain wiring is formed on a first substrate. The first substrate is provided with an insulating film covering the common wiring and the source/drain wiring. The insulating film is coated with a first alignment layer.

An opposite substrate, opposing the TFT substrate, having a second alignment layer, is formed on a second substrate. A liquid crystal is held between the first alignment layer and the second alignment layer. A common electrode and a pixel electrode is wired in parallel with each other and is formed as parts of the common wiring and the source/drain wiring,

respectively.

An angle made between a direction in which the first alignment layer is subjected to an aligning treatment and a direction in which the second alignment layer is subjected to an aligning treatment is set to a value of 0.5 to 4.0 degrees.

An advantage of the present invention compared to conventional techniques is that the initial alignments of the alignment layers are selected in a range of values that increase a response of switching the liquid crystal while still maintaining a high contrast ratio. As shown in Figure 7, the present invention provides measurable response time increases.

II. THE CONSTRUCTIVE RESTRICTION

The Examiner has imposed a constructive restriction on claim 18-20 and withdrawn these claims from consideration. The Examiner considers that the method described in claims 18-20 could be done in a different ordering of the steps described in the claims.

Applicant submits that the Examiner's alleged differences in methods (e.g., the basis for the restriction analysis) are not at all reflected in the wording of the original claim, since, except those steps clearly requiring a previous stage upon which a structure is formed, there is no sequence of steps implied in these steps. However, to expedite prosecution, Applicant has rendered the Examiner's rationale moot by amending claim 18 to eliminate the steps that the Examiner considers as the basis upon which to declare a different method.

Accordingly, Applicant requests that the Examiner reconsider and withdraw this restriction and constructive withdrawal.

III. THE PRIOR ART REJECTIONS

The Examiner alleges that US Patent 5,576,867 to Baur et al. renders obvious the invention defined by claims 1-7 and 10-17 and, when combined with Applicant's Admitted Prior Art, renders obvious the invention defined by claims 8 and 9. The Examiner considers that it would be obvious to one of ordinary skill in the art to optimize the twist angle $\beta \leq 15^\circ$.

However, the present invention teaches that the different strengths of the electric field

inside the liquid crystal is a source of lower than optimal response time, and that response time can be improved, as clearly shown in Figure 7, by controlling the twist angle to be within a prescribed range, as taught by the present invention. Moreover, as seen in Figure 8, the present invention also teaches that contrast degradation occurs when the twist angle is above approximately 4. Therefore, the present invention teaches a precise, smaller range than suggested in Baur. Baur does not describe any dependence of response speed on twist angle.

Accordingly, the present invention describes twist angle to be a parameter to control response time. Baur does not mention response speed, let alone identify its dependence upon twist angle, and/or providing a solution for its improvement. Indeed, Baur does not even mention an effect for the twist angle. Hence, based on Baur, the dependence of response time on twist angle is an unexpected result, thereby establishing a criticality for this parameter and for the ranges discussed in the present invention.

It is also noted, for purpose of appeal, that the Examiner's allegation that one of ordinary skill would be motivated to rely on twist angle as a parameter "*... to produce a display with low dependence of image contrast on viewing angle*" is not supported in Baur. That is, nowhere in Baur is there a discussion of the significance of twist angle and nowhere is there a suggestion to optimize this parameter for any reason. That is, as explained at MPEP §2141.02: "*Obviousness cannot be predicated on what is not known at the time an invention is made, even if the inherency of a certain feature is later established.*"

Therefore, based on Baur, one of ordinary skill in the art would not have a motivation to attempt to optimize response time by using twist angle. Indeed, the range of twist angle values used in Baur exceed the 4 degree maximum recommended by the present invention. Therefore, Baur arguably actually teaches against the narrow range of twist angles taught in the present invention.

Moreover, the Applicants submit that the appropriate legal standard appropriate to the analysis of the present Application is defined in MPEP §2144.05 II. B. in which section it is described that each "*... particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the*

optimum or workable ranges of said variables might be characterized as routine experimentation (emphasis by Applicants)." This section is citing *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA, 1977).

The following words from that case are an appropriate criticism of the technique of the rejection currently of record, as follows (emphasis by Applicants):

"In determining whether the invention as a [whole] would have been obvious under 35 U.S.C. §103, we must first delineate the invention as a whole.... Just as we look to a chemical and its properties when we examine the obviousness of a composition of matter claim, it is this invention as a whole, and not some part of it, which must be obvious under 35 U.S.C. §103.... The PTO and the minority appear to argue that it would always be obvious for one of ordinary skill in the art to try varying every parameter of a system in order to optimize the effectiveness of the system even if there is no evidence in the record that the prior art recognized that particular parameter affected the result. As we have said many times, obvious to try is not the standard of 35 U.S.C. §103.... Disregard for the unobviousness of the results of 'obvious to try' experiments disregards the 'invention as a whole' concept of § 103,.... and over-emphasis on the routine nature of the data gathering required to arrive at appellant's discovery, after its existence become[s] expected, overlooks the last sentence of §103. "

The Examiner relies upon the Applicant's Admitted Prior Art as demonstrating details defined in claims 8 and 9 for the thin film transistor construction, which reliance does not overcome the failure in Baur to define twist angle as a parameter for response time.

Hence, turning to the clear language of the claims, there is no teaching or suggestion of " ...so that an angle made between a direction in which said first alignment layer is subjected to aligning treatment and a direction in which said second alignment layer is subjected to aligning treatment is set to a value of 0.5 to 4.0 degrees."

Moreover, for purpose of appeal, Applicant notes that the rejection currently of record fails to provide proper motivation to modify Baur to incorporate the thin film transistor details of claims 8 and 9. That is, as described in MPEP §2143.01: "*The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art itself also suggests the desirability of the combination*" (Emphasis in MPEP itself).

For the reasons stated above, the claimed invention is fully patentable over the cited references.

Further, the other prior art of record has been reviewed, but it too even in combination with Baur or Applicant's Admitted Prior Art, fails to teach or suggest the claimed invention.

IV. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1-20, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

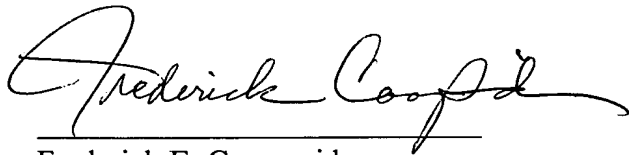
Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: _____

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